Indiana Crop & Weather Report

United States Dept of Agriculture

Indiana Agricultural Statistics Service
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CROP REPORT FOR WEEK ENDING AUGUST 4

AGRICULTURAL SUMMARY

Hot weather continues to place crops and livestock under stress, according to the Indiana Agricultural Statistics Service. Many areas received much needed precipitation during the week. However, some of the areas where major crops are under severe stress received none or very little rain. Many farmers were scouting their corn and soybean fields to evaluate the damage from the recent hot temperatures. Reporters indicate that farmers in many areas of the state are very concerned about the condition of their crops. There is significant variation of plant height and pollination in corn fields. Growth and development of corn and soybeans have been slowed by hot temperatures and lack of rain. Quality and yield of hay crops have also been effected. The most critical areas for soil moisture deficiency is in the northeast, east central, southwest and south central regions of the state.

FIELD CROPS REPORT

There were 6.5 **days suitable for fieldwork**. Corn **condition** is rated 31 percent good to excellent compared with 31 percent last week and 79 percent last year at this time. Eighty-seven percent of the corn acreage has **silked** compared with 100 percent last year and 93 percent for the 5-year average. Eighteen percent of the corn acreage has reached the **dough** stage compared with 47 percent last year and 37 percent for the average. Soybean **condition** is rated 38 percent good to excellent compared with 35 percent last week and 73 percent a year earlier. Seventy-eight percent of the soybean acreage is **blooming** compared with 97 percent last year and 90 percent for the 5-year average. Thirty-five percent of the soybean acreage is **setting pods** compared with 67 percent last year and 54 percent for the average.

Other activities during the week included scouting fields, spraying, cutting and baling hay, moving grain to market, cutting silage, repairing equipment, mowing roadsides, cleaning grain bins, hauling manure and taking care of livestock.

LIVESTOCK, PASTURE AND RANGE REPORT

Pasture condition is rated 1 percent excellent, 15 percent good, 35 percent fair, 28 percent poor and 21 percent very poor. Pastures are drying up and in poor condition in most areas of the state. Second cutting of **alfalfa** hay is 95 percent complete compared with 100 percent last year and 94 percent for the average. Livestock were under a lot of stress last week from the hot temperatures, especially cattle in feedlots.

CROP PROGRESS TABLE

Crop	This Week	Last Week	Last Year	5-Year Avg
	Percent			
Corn Silked	87	66	100	93
Corn in Dough	18	7	47	37
Soybeans Blooming	78	58	97	90
Soybeans Podding	35	16	67	54
Alfalfa Second Cutting	95	88	100	94

CROP CONDITION TABLE

Crop	Very Poor	Poor	Fair	Good	Excel-lent
	Percent				
Corn	13	20	36	28	3
Soybean	8	17	37	34	4
Pasture	21	28	35	15	1

SOIL MOISTURE & DAYS SUITABLE FOR FIELDWORK TABLE

	This Week	Last Week	Last Year
	Percent		
Topsoil			
Very Short	33	31	5
Short	43	42	21
Adequate	23	26	67
Surplus	1	1	7
Subsoil			
Very Short	26	25	6
Short	43	40	25
Adequate	31	34	65
Surplus	0	1	4
Days Suitable	6.5	6.4	5.9

CONTACT INFORMATION

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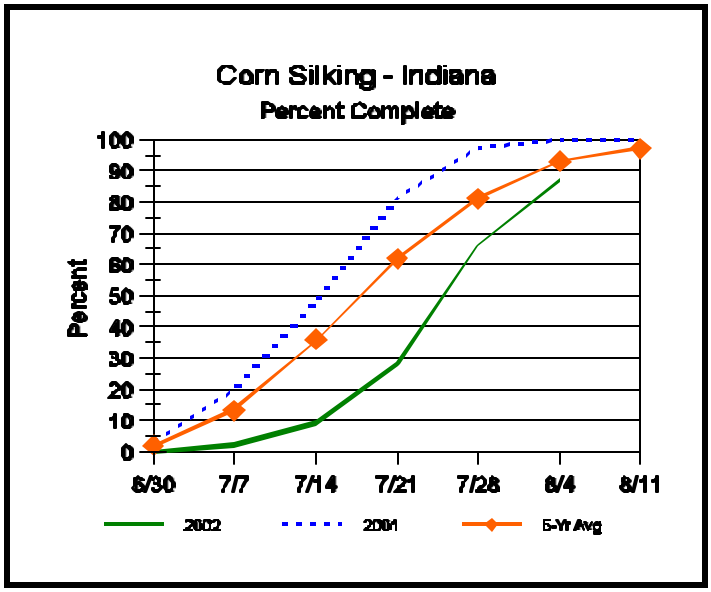
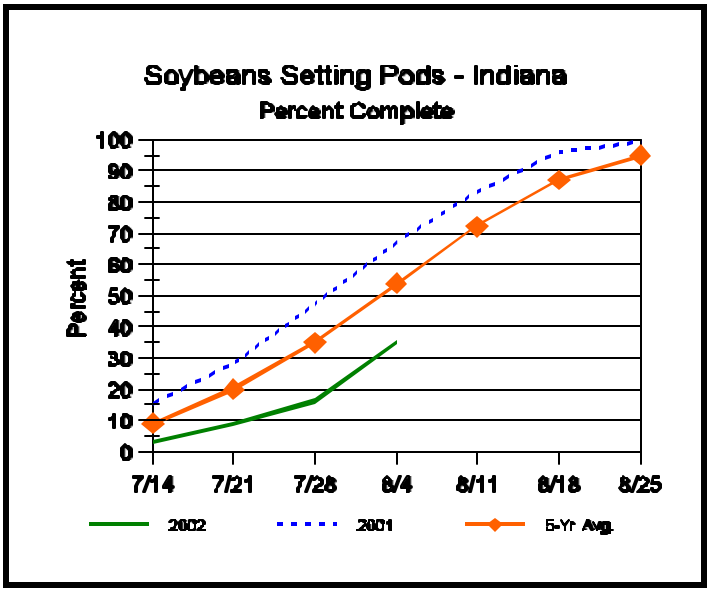
--Bud Bever, Agricultural Statistician
E-Mail Address: nass-in@nass.usda.gov
http://www.nass.usda.gov/in/index.htm

Crop Progress





Other Agricultural Comments And News

Yield Loss During Grain Fill

Yield potential in corn is influenced at several stages of growth and development. Ear size potential (number of potential kernels) is determined quite early, from about knee-high to about shoulder-high, or from about leaf stage V6 to V15. The next influential period for the corn crop is pollination.

The period following successful pollination and finishing at kernel black layer is defined as the grain filling period in corn and represents the final important yield determining time frame. Grain fill stages in corn were described in a recent article (Grain Fill Stages in Corn, P&C Newsletter, 8/2/02). Perfect conditions for ear size determination and pollinations can still be negated if severe stress occurs during the grain fill period.

Yield loss during grain fill can occur from 1) stand loss, 2) incomplete kernel set, 3) lightweight kernels, and 4) premature plant death.

Stand Loss During Grain Fill. Yield loss due to stand loss during grain fill is usually greater than that due to stand loss that occurs during the vegetative phase. When stand loss occurs prior to pollination, ear size (number of kernels) on surviving plants may compensate in response to the lesser competition of a thinner stand. Additional compensation may occur during grain fill in terms of greater kernel weight. When stand loss occurs during grain fill, ear size has already been set. Only kernel weight can compensate in response to the lesser competition of a thinner stand.

Incomplete Kernel Set in Corn. Kernel set refers to the degree to which kernels have developed up and down the cob. Incomplete kernel set is not always apparent from 'windshield' surveys of a corn field. Husks and cob will continue to lengthen even if kernel set is incomplete. A wonderfully long, robust-looking, healthy green ear shoot can completely mask even a 100 percent failure of pollination or severe kernel abortion.

One of the causes of incomplete kernel set is unsuccessful pollination. Unsuccessful pollination results in ovules that are never fertilized and, subsequently, ears with varying degrees and patterns of incomplete kernel set. Many factors can cause incomplete pollination and distinguishing between them can be very difficult.

Certain insects like corn rootworm beetles and Japanese beetles can interfere with pollination and fertilization by their silk clipping action. These insects feed on pollen and subsequently clip silks as they feed on the pollen that has been captured by the silks. Unusually early or late pollinating fields are often particularly attractive to these insects.

Drought stress may delay silk emergence until pollen shed is nearly or completely finished. During periods of high temperatures, low relative humidities, and

(Continued on Page 4)

Weather Information Table

Week ending Sunday August 4, 2002

Station	Past Week Weather Summary Data							Accumulation				
	Air Temperature				Precip.		Avg 4 in Soil	April 1, 2002 thru August 4, 2002				
								Precipitation			GDD Base 50°F	
	Hi	Lo	Avg	DFN	Total	Days	Temp	Total	DFN	Days	Total	DFN
Northwest (1)												
Chalmers_5W	93	62	77	+4	1.41	4		14.71	-1.01	51	2047	+72
Valparaiso_AP_I	92	58	78	+6	0.87	3		14.77	-1.75	47	2035	+252
Wanatah	92	66	77	+6	0.64	3	82	15.67	-0.41	52	1943	+238
Wheatfield	90	61	77	+5	2.88	3		17.73	+2.02	41	1980	+228
Winamac	90	64	77	+6	3.52	3	80	16.73	+1.00	48	1979	+164
North Central(2)												
Plymouth	91	63	77	+5	1.88	5		15.94	-0.47	54	1898	+4
South_Bend	92	60	78	+6	1.16	2		13.29	-2.12	47	1992	+224
Young_America	91	66	79	+6	0.88	3		16.64	+1.46	45	2077	+220
Northeast (3)												
Columbia_City	89	63	77	+7	2.58	3	79	14.39	-1.05	48	1864	+177
Fort_Wayne	92	67	79	+6	1.47	2		15.60	+1.30	43	2052	+200
West Central (4)												
Greencastle	92	63	78	+4	1.50	2		23.50	+5.49	47	1997	-99
Perrysville	91	66	78	+5	1.17	3	81	20.69	+3.54	48	2136	+171
Spencer_Ag	94	64	80	+6	0.34	2		25.09	+6.68	52	2117	+146
Terre_Haute_AFB	94	64	80	+6	0.28	2		28.60	+11.22	49	2318	+225
W_Lafayette_6NW	92	64	78	+6	1.28	4	81	20.79	+5.01	56	2107	+250
Central (5)												
Eagle_Creek_AP	94	67	81	+7	0.46	2		19.10	+2.91	52	2267	+193
Greenfield	94	67	80	+7	0.15	1		26.04	+8.22	52	2142	+161
Indianapolis_AP	95	67	82	+8	0.39	2		17.92	+1.73	46	2337	+263
Indianapolis_SE	94	64	80	+6	0.40	1		21.60	+4.74	45	2137	+83
Tipton_Ag	93	66	79	+7	0.81	4	83	16.28	+0.28	47	1977	+177
East Central (6)												
Farmland	95	64	80	+8	0.08	1	79	14.53	-1.20	49	2059	+307
New_Castle	92	63	77	+5	0.12	1		17.93	+0.64	39	1808	+16
Southwest (7)												
Evansville	96	69	83	+5	0.45	1		18.73	+1.97	40	2670	+242
Freelandville	96	67	82	+7	0.29	1		20.65	+3.27	39	2423	+257
Shoals	97	63	82	+8	0.35	1		20.06	+1.22	38	2315	+232
Stendal	98	67	83	+7	0.28	1		20.80	+2.25	41	2513	+237
Vincennes_5NE	97	66	82	+7	0.30	2	82	21.03	+3.65	44	2481	+315
South Central(8)												
Leavenworth	98	68	82	+7	0.49	1		19.92	+0.84	39	2397	+319
Oolitic	98	63	82	+8	0.14	1	81	22.99	+5.11	48	2242	+255
Tell_City	98	72	84	+8	0.21	1		18.81	-0.08	30	2767	+462
Southeast (9)												
Brookville	100	65	83	+10	0.11	1		18.36	+1.09	41	2271	+392
Milan_5NE	96	63	81	+8	0.30	2		24.29	+7.02	49	1973	+94
Scottsburg	95	67	82	+7	0.65	1		21.41	+3.71	46	2269	+120

DFN = Departure From Normal (Using 1961-90 Normals Period).
GDD = Growing Degree Days.
Precipitation (Rainfall or melted snow/ice) in inches.
Precipitation Days = Days with precip of .01 inch or more.
Air Temperatures in Degrees Fahrenheit.

The above weather information is provided by AWIS, Inc.
For detailed ag weather forecasts and data visit the AWIS home page at
www.awis.com or call toll free at 1-888-798-9955.

Yield Loss During Grain Fill (Continued)

inadequate soil moisture levels, exposed silks may also dessicate and become non-receptive to pollen germination.

Unusually favorable conditions prior to pollination that favor ear size determination can result in ears with an unusually high number of potential kernels per row. Remember that silk elongation begins near the butt of the ear and progresses up toward the tip. The tip silks are typically the last to emerge from the husk leaves. If ears are unusually long (many kernels per row), the final silks from the tip of the ear may emerge after all the pollen has been shed.

Another cause of incomplete kernel set is abortion of fertilized ovules. Aborted kernels are distinguished from unfertilized ovules in that aborted kernels had actually begun development. Aborted kernels will be shrunken, mostly white, often with the yellow embryo visible; compared to normal plump yellow kernels.

Kernels are most susceptible to abortion during the first 2 weeks following pollination, particularly kernels near the tip of the ear. Tip kernels are generally last to be fertilized, less vigorous than the rest, and are most susceptible to abortion. Once kernels have reached the dough stage of development, further yield losses will occur mainly from reductions in kernel dry weight accumulation.

Severe drought stress that continues into the early stages of kernel development (blister and milk stages) can easily abort developing kernels. Severe nutrient deficiencies (especially nitrogen) can also abort kernels if enough of the photosynthetic 'factory' is damaged. Extensive loss of green leaf tissue by certain leaf diseases, such as common rust or gray leaf spot, by the time pollination occurs may limit photosynthate production enough to cause kernel abortion. Consecutive days of heavily overcast, cloudy conditions may also reduce photosynthesis enough to cause abortion in recently fertilized ovules.

Decreased Kernel Weight. Severe stress during dough and dent stages of grain fill decreases grain yield primarilydue to decreased kernel weights and is often caused by premature black layer formation in the kernels. Decreased kernel weight can result from severe drought and heat stress during grain fill; extensive European corn borer tunneling (especially in the ear shanks); loss of photosynthetic leaf area by hail, insects, or disease early in grain fill; and killing fall frosts prior to normal black layer development.

Once grain has reached physiological maturity, stress will have no further physiological effect on final yield, because final yield is already achieved. Stalk and ear rots, however, can continue to develop after corn has reached physiological maturity and indirectly reduce grain yield.

Premature Plant Death. A killing fall frost prior to physiological maturity can cause premature leaf death or whole plant death. Premature death of leaves results in yield losses because the photosynthetic 'factory' output is greatly reduced. The plant may remobilize stored carbohydrates from the leaves or stalk tissue to the developing ears, but yield potential will still be lost.

Premature death of whole plants results in greater yield losses than if only leaves are killed. Death of all plant tissue prevents any further remobilization of stored carbohydrates to the developing ear. Whole plant death that occurs before normal black layer formation will cause premature black layer development, resulting in incomplete grain fill and lightweight, chaffy grain. Grain moisture will be greater than 35%, requiring substantial field drydown before harvest.

Don't forget, this and other timely information about corn can be viewed at the Chat 'n Chew Café on the World Wide Web at http://www.kingcorn.org/cafe. For other information about corn, take a look at the Corn Growers' Guidebook on the World Wide Web at http://www.kingcorn.org/

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